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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,316	11/25/2003	Tae-Kyung Kim	03-ASD-159 (EM)	9302
200	7590	02/21/2006	EXAMINER	
EATON CORPORATION EATON CENTER 1111 SUPERIOR AVENUE CLEVELAND, OH 44114			NGUYEN, HOA CAO	
			ART UNIT	PAPER NUMBER
			2841	

DATE MAILED: 02/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/722,316

Applicant(s)

KIM ET AL.

Examiner

Hoa C. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 1-6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 May 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2 pages.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. Applicant's election with traverse of Invention II, claims 7-16, in the reply filed on 1/12/06 is acknowledged. The traversal is on the ground(s) that the claimed method, claims 1-6, is impossible to be used to make anything other than the apparatus in claims 7-16 and the examiner. This is not found persuasive because Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)).

As can be seen in claim 1, there are five steps ((a)-(e)) for connecting a solenoid to a lead frame. At least in steps (a) and (e), the connector terminals (assuming conductive pins) on the solenoid can be used to plug into the lead frame first and then the solenoid is plugged into the connector terminals later. In this instant case, the solenoid has a female connector instead of male connector as disclosed in figure 2.

The requirement is still deemed proper and is therefore made **FINAL**.

### ***Specification***

2. Claim 7 is objected to because of the following informalities: The "terminal; and," must be changed to "terminal; and". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 7-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ford et al. (US 20040118466) in view of common knowledge and further in view of Meschenmoser (US 1157026).

**Regarding claim 7**, as shown in figures 1 and 2b, Ford et al. disclose in combination a solenoid and lead frame assembly comprising:

(a) A plurality of connector terminals 118, 124 (selectively solenoid 72, see paragraphs 15 and 17), and

(b) as can be seen in figure 2b, the connector terminals has a web disposed between the terminals; and

(c) a lead frame 216 (see paragraph 27, and as can be seen in figure 1), which has a matched connector (or a socket, namely lead frame connector) formed thereon for connecting to the connector terminals 118, 124, and the matched connector contains a pair of slots (the lead frame slots) for the connector terminals to plug into.

However, Ford et al. failed to disclose the lead frame with a pair of projections and that the lead frame slots engage the connector terminals with the pair of projections

engaging opposite sides of the web.

It would have been obvious that the lead frame 216 indeed has a matched connector for the connector terminals; otherwise the connector terminal cannot be plugged in. Since the connector terminals have a web formed in between the terminal, therefore the lead frame connector must be formed in such a way that there are at least a pair of projections (a guided structure) formed thereon providing a space in between them so that the web of the connector terminals can be fitted into.

Meschenmoser, as shown in figures 1, 2, 4, and 5, discloses connector terminals 8, 9 (contact pins, see line 77). The connector terminals (connector A) have support stanchions 4 (a block which houses the connector terminals 8, 9, see lines 80-84) and a web 26 (a barrier, see lines 104-108) formed in between the connector terminals. Meschenmoser further discloses a matched connector (connector B), which has a pair of slots 24 (see lines 91) for the fitting of the connector terminals 8, 9 and a pair of projections (no number) formed a space 27 (see lines 121-122) in between the slots 24 for the fitting of the web 26.

It would have been obvious to one having ordinary skill in the art at the time of the invention was made to apply the teachings from Meschenmoser on the lead frame of Ford et al. such that the lead frame connector has at least a pair of projections for guiding the connector terminals to fit into the lead frame connector and that the lead frame slots engage the connector terminals with the pair of projections engaging opposite sides of the web.

**Regarding claim 8**, Ford et al. and Meschenmoser disclose every limitation as shown in claim 7 above including the projections that inherently must be integrally formed with the lead frame in order to achieve a matching between the two.

**Regarding claim 9**, Ford et al. and Meschenmoser disclose every limitation as shown in claim 8 above including the projections and the lead frame that must be integrally molded, because they must be matched to each other.

**Regarding claim 10**, as shown in figure 2b, Ford et al. disclose the connector terminals that include support stanchions (the housing for the contact lead).

**Regarding claim 11**, Ford et al. and Meschenmoser disclose every limitation as shown in 10 above and inherently that the support stanchions must be integrally molded with the lead frame, because a matching must be achieved between assembly parts, otherwise they can not fit to each other.

**Regarding claim 12**, Ford et al. and Meschenmoser disclose every limitation as shown in claim 8 above and the web, which inherently must be integrally formed with the support stanchions for the same reasons as shown in claims 8-9 and 11 above.

**Regarding claim 13**, Ford et al. and Meschenmoser disclose every limitation as shown in claim 10 above and the web and the stanchions that inherently must be integrally molded with the lead frame for the same reasons as shown in claims 8-9 and 11 above.

**Regarding claim 14**, Ford et al. and Meschenmoser disclose every limitation as shown in claim 7 above including the web, which inherently must be integrally formed with the lead frame for the same reasons as shown in claims 8-9 and 11 above.

**Regarding claim 15**, Ford et al. and Meschenmoser disclose every limitation as shown in claim 14 above including the web and the lead frame that inherently must be integrally molded for the same reasons as shown in claims 8-9 and 11 above.

**Regarding claim 16**, Ford et al. and Meschenmoser disclose every limitation as shown in claim 14 above including the projections that are disposed intermediate the slots (see Meschenmoser, figure 1).

#### ***Citation of Relevant Art***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Ford et al. (US 6929031) disclose an electro-hydraulic manifold assembly with lead frame mounted pressure sensors.

Reuter et al. (US 5845672) disclose a solenoid coil positioning assembly.

Nagashima et al. (US 5460350) disclose an electromagnetic valve device.

Isohata et al. (US 5314356) disclose a connector and method for variable polarization.

Sappington et al. (US 4759730) disclose a polarized fuseholder assembly.

Schmidt et al. (US 4186363) disclose a solenoid assembly for elevated temperature service.

#### ***Conclusion***

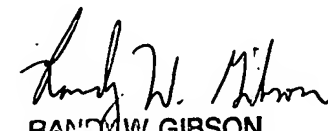
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoa C. Nguyen whose telephone number is 571-272-8293. The examiner can normally be reached on M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kammie Cuneo can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hoa C. Nguyen  
2/15/06

  
RANDY W. GIBSON  
PRIMARY EXAMINER

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